



Recent trends in pre-monsoon daily temperature extremes over India

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Abstract:

Extreme climate and weather events are increasingly being recognized as key aspects of climate change. Pre-monsoon season (March-May) is the hottest part of the year over almost the entire South Asian region, in which hot weather extremes including heat waves are recurring natural hazards having serious societal impacts, particularly on human health. In the present paper, recent trends in extreme temperature events for the pre-monsoon season have been studied using daily data on maximum and minimum temperatures over a well-distributed network of 121 stations for the period 1970-2005. For this purpose, time series of extreme temperature events have been constructed for India as a whole and seven homogeneous regions, viz., Western Himalaya (WH), Northwest (NW), Northeast (NE), North Central (NC), East coast (EC), West coast (WC) and Interior Peninsula (IP). In general, the frequency of occurrence of hot days and hot nights showed widespread increasing trend, while that of cold days and cold nights has shown widespread decreasing trend. The frequency of the occurrence of hot days is found to have significantly increased over EC, WC and IP, while that of cold days showed significant decreasing trend over WH and WC. The three regions EC, WC and NW showed significant increasing trend in the frequency of hot nights. For India as whole, the frequency of hot days and nights showed increasing trend while cold days and nights showed decreasing trends. Day-to-day fluctuations of pre-monsoon daily maximum and minimum temperatures have also been studied for the above regions. The results show that there is no significant change in day-to-day magnitude of fluctuations of pre-monsoon maximum and minimum temperatures. However, the results generally indicate that the daily maximum and minimum temperatures are becoming less variable within the season.

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Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Temperature

Temperature: Extreme Heat

Geographic Feature:

resource focuses on specific type of geography

None or Unspecified

Geographic Location:

Climate Change and Human Health Literature Portal



resource focuses on specific location

Non-United States

Non-United States: Asia

Asian Region/Country: India

Health Impact: 

specification of health effect or disease related to climate change exposure

Injury

Resource Type: 

format or standard characteristic of resource

Research Article

Timescale: 

time period studied

Time Scale Unspecified